

## **2436S, CLEAR LAKE FAULT ZONE**

**Structure number:** 2436S.

Comments: Hecker's (1993) fault number 8-5. Suspected.

**Structure name:** Clear Lake fault zone.

Comments:

**Synopsis:** Poorly understood zone of suspected Holocene faulting near Clear Lake in the Sevier Desert. Some fault displacements may be related to subsidence following volcanic activity.

**Date of Compilation:** 10/99.

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**State:** Utah.

**County:** Millard.

**1° x 2° sheet:** Delta and Richfield.

**Province:** Basin and Range.

**Reliability of location:** Good.

Comments: Mapped or discussed by Bucknam and Anderson (1979), Currey (1982), Crone and Harding (1984), Oviatt (1989, 1991), and Hintze and Davis (in preparation). Mapping from Oviatt (1989, 1991).

**Geologic setting:** Complex zone of north-trending down-to-the-east normal faults near Clear Lake in the Sevier Desert. The faults are in lake and playa deposits in a zone roughly 30 kilometers long and 5-10 kilometers wide. Seismic reflection data indicate that the high-angle Clear Lake fault intersects, but does not cut, the Sevier detachment at a shallow depth (about 3.5 kilometers), raising questions about the seismic potential of the fault (Crone and Harding, 1984).

**Sense of movement:** N.

Comments:

**Dip:** No data.

Comments:

**Dip direction:** E.

**Geomorphic expression:** To the east of the Clear Lake fault, which is the largest (at least 3 meters of displacement) and most continuous fault in the zone, lies a swarm of fractures having unknown (but probably small) displacements. Some fault displacements may be related to subsidence into a magma chamber beneath the Pavant, Ice Springs, and Tabernacle Hill volcanic fields, which have been active in Bonneville and post-Bonneville time. The Bonneville and Provo shorelines on Pavant Butte to the east are anomalously low (17 meters and 10 meters too low, respectively, from regional shoreline mapping), but the highest shoreline on Pavant Butte may not be equivalent to the Bonneville shoreline elsewhere. The lower elevations may also be due to suppression of post-Bonneville crustal rebound by the isostatic load of the volcanic pile.

**Age of faulted deposits:** Holocene.

**Paleoseismology studies:** None.

**Timing of most recent paleoevent:** (2) Latest Quaternary (<15 ka).

Comments:

**Recurrence interval:** No data.

Comments:

**Slip rate:** Unknown, probably <0.2 mm/yr.

Comments:

**Length:** End to end (km): 35

Cumulative trace (km): 150

**Average strike** (azimuth): N9°W

## ***REFERENCES***

Bucknam, R.C., and Anderson, R.E., 1979, Map of fault scarps on unconsolidated sediments, Delta 1° x 2° quadrangle, Utah: U.S. Geological Survey Open-File Report 79-366, 21 p., scale 1:250,000.

Crone, A.J., and Harding, S.T., 1984, Relationship of late Quaternary fault scarps to subjacent faults, eastern Great Basin, Utah: *Geology*, v. 12, no. 5., p. 292-295.

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Hecker, Suzanne, 1993, Quaternary tectonics of Utah with emphasis on earthquake-hazard characterization: Utah Geological Survey Bulletin 127, 2 plates, scale 1:500,000, 257 p.

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Oviatt, C.G., 1989, Quaternary geology of part of the Sevier Desert, Millard County, Utah: Utah Geological and Mineral Survey Special Studies 70, 41 p., scale 1:100,000.

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